

ON THE POSSIBLE DUSTY RINGS AROUND MARS

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We have now sufficient information that convinces us that discrete dusty annular belts (rings) are formed around every gravitating centers with common regularities of the distributions around these centers (see e. g. [1, 2]). Mean distances these rings are near to

$$a_n = na_o/2, \quad a_o = \beta M^{7/9}, \quad (1)$$

where n – natural numbers, $\beta=(115,78\pm 0,11)\cdot 10^{-15}$ m.kg^{-7/9} is the integration constant, M – mass of attracting center [3].

A comprehensive research of Mars including its micrometeoritic surroundings is urgent in connection with the preparation of human mission to the Mars. According to (1) for Mars $a_o = a_M = 381$ km. The comparison of the calculated semi-major axes a_n of Phobos and Deimos orbits with their observed values a_{obs} is shown in the table. The

Satellite	n	$a_n = na_M/2$	a_{obs}	$\Delta a = a_{obs} - a_n$
Phobos	49	9341 km	9278	37
Deimos	123	23447	23459	12

differences Δa appear not significant, if one takes into account the instable position of Phobos through its orbital acceleration.

Middles of annular dusty belts positions can be expected leading of with the height from the martian surface $h=9.5a_M - R_M$ km (R_M – equatorial radius of Mars) and higher according to formulae (1), if there is enough dust.

A fine structure of the rings is very possible. Its details must contain a whole number of parts of a_M radially extending belt. On the other hand more lengthy formation than a_M may be revealed. One from this evidence may be 2/5 commensurability of the orbits of Phobos and Deimos revealing the accuracy to within one thousandth (2.501). Here we can take the half of semi-major axis of Phobos orbit as element of commensurability and so can expect the displaying of structural details of this large harmonic (mode) at the heights of 1245, 5884, 10523, 15162 kms etc.

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2. Gulak Yu.K. On the Interplanet. Stable Multy-belt Reservoirs of Comet Bodies // *Kinem. and Physics of Cel. Bodies.*-1987.-**3**, N6.-P.13-18.

3. Gulak Yu.K. On the Commensurabilities in the Solar System // *Sov.Astron.*-1980.- **24**, N1.- P.84-89.